Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

Claim 1 - 24 (cancelled).

Claim 25 (new):

A method for proving a turbine meter for use in a natural gas conduit, the method comprising:

providing a prover system, the prover system including a reference meter;

connecting the turbine meter to the prover system for fluid communication therewith;

introducing a test medium into the prover system, the test medium being a gas other than air having a Reynolds number greater than the Reynolds number of natural gas at a given pressure;

urging the test medium to flow through the reference meter and the turbine meter;

measuring the flow rate of the test medium through the prover system using each of the reference meter and the turbine meter; and

comparing the flow rate measured by the reference meter to the flow rate measured by the turbine meter to establish thereby the accuracy of the turbine meter.

Claim 26 (new):

The method of claim 25 wherein introducing a test medium into the prover system includes charging the prover system with the test medium until a predetermined target pressure has been reached.

Claim 27 (new):

The method of claim 26 wherein introducing a test medium into the prover system further includes pressurizing the test medium in the prover system.

Claim 28 (new):

The method of claim 25 wherein the test medium has a density that is greater than twice the density of natural gas at a given pressure.

Claim 29 (new):

The method of claim 25 wherein the test medium has a dynamic viscosity that is lesser than the dynamic viscosity of natural gas at a given pressure.

Claim 30 (new):

The method of claim 25 wherein the test medium exhibits ideal gas behavior at a temperature approximately $15°C < T < 25°C$ and at a pressure approximately $1 \text{ bar} < P < 50 \text{ bar}$.

Claim 31 (new):

The method of claim 25 wherein the test medium liquifies easily at a temperature greater than approximately -100°C at atmospheric pressure.

Claim 32 (new):

The method of claim 25 wherein the test medium stores at room temperature in liquid form at a pressure smaller than 65 bar.

Claim 33 (new):

The method of claim 25 wherein the test medium is carbon dioxide.

Claim 34 (new):

The method of claim 25 wherein the test medium is selected from the group consisting of carbon dioxide, argon and sulphur hexafluoride.

Claim 35 (new):

The method of claim 25 wherein urging the test medium to flow through the reference meter and the turbine meter includes circulating the test medium through the prover system at a pressure of approximately 8 bar and a temperature of approximately 20°C.

Claim 36 (new):

The method of claim 25 further including controlling the temperature of the test medium circulating in the prover system.

Claim 37 (new):

The method of claim 36 wherein controlling the temperature of the test medium circulating in the prover system includes cooling the test medium using a heat exchanger.

Claim 38 (new):

The method of claim 36 wherein controlling the temperature of the test medium circulating in the prover system includes introducing a refrigerant into the prover system.

Claim 39 (new):

The method of claim 38 wherein the refrigerant introduced into the prover system is liquefied test medium.

Claim 40 (new):

The method of claim 38 wherein the refrigerant introduced into the prover system is liquefied carbon dioxide.

Claim 41 (new):

The method of claim 38 wherein the refrigerant introduced into the prover system has a latent heat of vaporization that is greater than approximately 200 Btu/kg at a temperature $15°C < T < 25$ and at a pressure $1 \text{ bar} < P < 25 \text{ bar}$.

Claim 42 (new):

A system for proving a turbine meter for use in a natural gas conduit, the system comprising:

a reference meter;

a conduit system for carrying a test medium to be used for proving the turbine meter, the conduit system connecting the reference meter to the turbine meter for fluid communication therebetween;

a test medium, the test medium being a gas other than air having a Reynolds number greater than the Reynolds number of natural gas at a given pressure; and

means for circulating the test medium in the conduit system and through the reference meter and the turbine meter.

Claim 43 (new):

The system of claim 42 wherein the conduit system includes a fill valve for introducing the test medium into the system.

Claim 44 (new):

The system of claim 43 wherein the conduit system further includes:

a first flow straightener disposed upstream from the reference meter; and

a second flow straightener disposed upstream from the turbine meter.

Claim 45 (new):

The system of claim 42 wherein the test medium has a density that is greater than twice the density of natural gas at a given pressure.

Claim 46 (new):

The system of claim 42 wherein the test medium has a dynamic viscosity that is lesser than the dynamic viscosity of natural gas at a given pressure.

Claim 47 (new):

The system of claim 42 wherein the test medium exhibits ideal gas behavior at a temperature approximately $15°C < T < 25°C$ and at a pressure approximately $1 \text{ bar} < P < 50 \text{ bar}$.

Claim 48 (new):

The system of claim 42 wherein the test medium liquifies easily at a temperature greater than approximately -100°C at atmospheric pressure.

Claim 49 (new):

The system of claim 42 wherein the test medium stores at room temperature in liquid form at a pressure smaller than 65 bar.

Claim 50 (new):

The system of claim 42 wherein the test medium is carbon dioxide.

Claim 51 (new):

The system of claim 42 wherein the test medium is selected from the group consisting of carbon dioxide, argon and sulphur hexafluoride.

Claim 52 (new):

The system of claim 42 wherein the test medium is selected from the group consisting of carbon dioxide, argon and sulphur hexafluoride.

Claim 53 (new):

The system of claim 42 wherein the means for circulating the test medium includes:

a compressor for pressurizing the conduit system and circulating the test medium; and

means for driving the compressor.

Claim 54 (new):

The system of claim 53 wherein the means for driving the compressor includes a variable speed motor.

Claim 55 (new):

The system of claim 53 wherein the means for driving the compressor includes a variable speed motor.

Claim 56 (new):

The system of claim 42 further including means for cooling the test medium.

Claim 57 (new):

The system of claim 56 wherein the means for cooling the test medium includes a heat exchanger operatively connected to the conduit system.

Claim 58 (new):

The system of claim 57 wherein the means for cooling the test medium includes a heat exchanger operatively connected to the conduit system.

Claim 59 (new):

The system of claim 57 wherein the means for cooling the test medium includes at least one injection nozzle for delivering a refrigerant into the conduit system.

Claim 60 (new):

The system of claim 59 further including a refrigerant for cooling the test medium.

Claim 61 (new):

The system of claim 60 wherein the refrigerant is liquified carbon dioxide.